REMARKS

In response to the Office Action dated July 14, 2006, Applicants have amended the claims, which when considered with the following remarks, is deemed to place the present application in condition for allowance. Favorable consideration and allowance of all pending claims is respectfully requested. The amendments to the claims have been made in the interest of expediting prosecution of this case. Applicants reserve the right to prosecute the same or similar subject matter in this or another application.

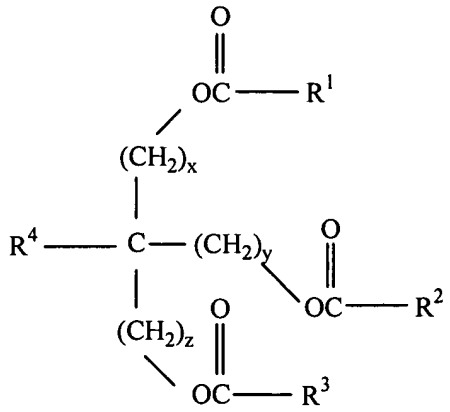
Claims 1-28 are pending in this application. By this Amendment, Claims 6-8 have been cancelled without prejudice and Claims 15-28, which were withdrawn from consideration due to a restriction requirement, have also been canceled herein without prejudice. Applicants respectfully reserve the right to file one or more divisional applications to non-elected Claims 15-28. Accordingly, amended Claims 1-5 and 9-14 are now under examination in this case. Applicants respectfully submit that no new matter has been added to this application. Moreover, it is believed that the claims as presented herein places the application in condition for allowance.

The Examiner has rejected original Claims 1-2, 4-5, 9-10 and 13-14 under 35 U.S.C. §102(e) as being anticipated by Chiu et al. U.S. Patent Application Publication No. 2003/0186824 ("Chiu et al."). Of these claims, Claim 1 has been amended to include the limitation of Claim 7. Thus, this rejection is deemed moot. Accordingly, withdrawal of the rejection of Claims 1-2, 4-5, 9-10 and 13-14 under 35 U.S.C. §102(e) is respectfully requested.

The Examiner has rejected original Claims 3, 6-8 and 11-12 under 35 U.S.C. §102(e) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as being obvious over Chiu et al. Of these claims, Claims 6-8 have been cancelled with the limitations of Claim 7 being incorporated into independent Claim 1.

The Chiu et al. reference resulted from a filing based on a provisional application. A portion of the Chiu et al. reference upon which the Examiner relies, e.g., Table 2 and certain examples (Examples 8-12) were added on the filing date of the utility application, which was September 24, 2002. The Declaration enclosed with this Amendment establishes conception and reduction to practice of the invention of the pending application as disclosed in the Invention Disclosure T-6172 at least before September 24, 2002, the effective filing date of relevant portions of U.S. Patent Application Publication No. 2003/0186824. The OR# 90548 in the Excel spreadsheet attached to the Invention Disclosure correspond to Example 1 of the subject application as filed and is within the scope of the claims. A copy of the Invention Disclosure, which is redacted to remove the dates, and the accompanying Excel spreadsheet is attached hereto as Exhibit 1.

It is respectfully submitted that the remaining portions of Chiu et al. do not anticipate or render obvious the subject matter of Claim 1 as presently amended for at least the following reasons. Specifically, Chiu et al. do not disclose a lubricating oil composition within the scope of amended Claim 1, comprising, "comprising (a) a major amount of base oil of lubricating viscosity and (b) a minor deposit-inhibiting effective amount of at least one polyol ester of the general formula

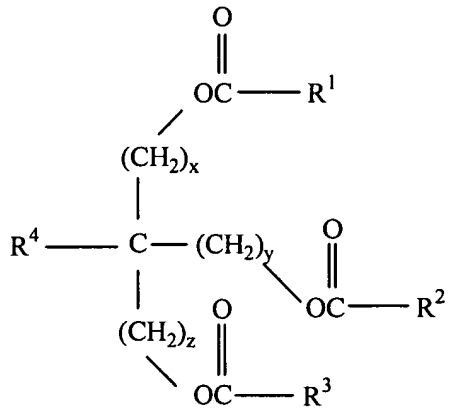


wherein R^1, R^2 and R^3 are independently an aliphatic hydrocarbyl moiety have from 4 to 24 carbon atoms, R^4 is hydrogen or an aliphatic hydrocarbyl moiety having 1 to 10 carbon atoms and x, y and z are the same or different and are integers from 1 to 6; wherein the minor deposit-inhibiting effective amount of the polyol ester is about 1 wt. % to about 5 wt. %, based on the total weight of the composition and wherein the composition has a phosphorous content not exceeding 0.08% by weight, based on the total weight of the composition."

Instead, Chiu et al. disclose an environmentally friendly lubricant containing a transesterified triglycerol oil; and a first ester different from the triglycerol oil which can be a synthetic ester such as a dibasic ester, a tribasic ester or a pentaerythritol ester of a C_5-C_7 alcohol. Chiu et al. further disclose that the synthetic ester can be present in the lubricant in an amount from about 10 to about 30%, more preferred from about 12 to about 25%, and most preferred from about 15 to about 20%. Accordingly, nothing in Chiu et al. that was present in the application at the time of filing the utility application disclose the presently recited lubricating oil compositions containing the limitation, *inter alia*, "wherein the minor deposit-inhibiting effective amount of the polyol ester is about 1 wt. % to about 5 wt. %, based on the total weight of the composition". Accordingly, the lubricant disclosed in Chiu et al. is not within the scope of the

lubricating oil composition as presently recited in amended Claim 1. As such, amended Claim 1 is believed to be patentable over Chiu et al.

There is likewise no suggestion or motivation in Chiu et al. of a lubricating oil composition within the scope of amended Claim 1, comprising, "(a) a major amount of base oil of lubricating viscosity and (b) a minor deposit-inhibiting effective amount of at least one polyol ester of the general formula



wherein R^1, R^2 and R^3 are independently an aliphatic hydrocarbyl moiety have from 4 to 24 carbon atoms, R^4 is hydrogen or an aliphatic hydrocarbyl moiety having 1 to 10 carbon atoms and x, y and z are the same or different and are integers from 1 to 6; wherein the minor deposit-inhibiting effective amount of the polyol ester is about 1 wt. % to about 5 wt. %, based on the total weight of the composition and wherein the composition has a phosphorous content not exceeding 0.08% by weight, based on the total weight of the composition."

Rather, Chiu et al. disclose a biodegradable lubricant that is at least 60% biodegradable and has a gelation index less than about 12, which can be formulated using a transesterified triglycerol oil and a synthetic ester capable of lowering the gelation index such as a dibasic ester, a tribasic ester or a pentaerythritol ester of a C_5-C_7 alcohol. Chiu et al. further disclose that the

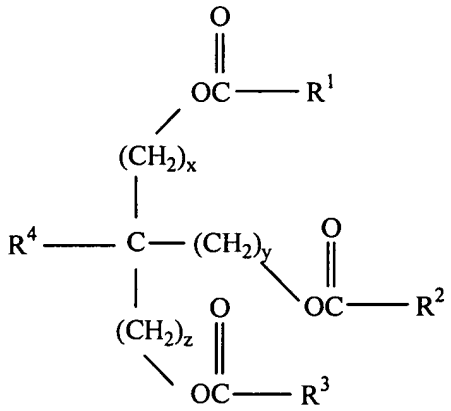
synthetic ester can be present in the lubricant in an amount from about 10 to about 30% or from about 15 to about 25%. Thus, as far as Chiu et al. is concerned, a dibasic ester or a pentaerythritol ester of a C_5-C_7 alcohol is the same as a tribasic ester as long as the ester is capable of lowering the gelation index of the lubricant.

Applicants have surprisingly discovered that lubricating oil compositions having a phosphorous content not exceeding 0.08% by weight can be formed that are more desirable than the higher phosphorous and sulfur content lubricating oil compositions generally used in internal combustion engines because they facilitate longer catalytic converter life and activity while also employing relatively low levels of the specifically recited polyol ester to provide high wear and deposit protection and oxidation-corrosion inhibition. However, the primary goal of Chiu et al. is to provide a biodegradable lubricant that is at least 60% biodegradable and has a gelation index less than about 12. Accordingly, nothing in Chiu et al. would lead one skilled in the art to modify the biodegradable lubricant that is at least 60% biodegradable and has a gelation index less than about 12 disclosed therein and arrive at the presently claimed lubricating oil composition with any expectation of success. As such, amended Claim 1 is believed to non-obvious, and therefore patentable, over Chiu et al.

Dependent Claims 2-5 and 9-14 are believed to be patentable for at least the same reasons as amended independent Claim 1. Therefore, immediate allowance of these claims is also respectfully requested.

The Examiner has rejected Claims 1-5 and 9-14 under 35 U.S.C. §102(b) as being anticipated by Culpon Jr. U.S. Patent No. 5,151,205 ("Culpon").

In contrast to the presently claimed invention, Culpon fails to disclose a lubricating oil composition within the scope of amended Claim 1, comprising, *inter alia*, "a minor deposit-inhibiting effective amount of at least one polyol ester of the general formula



wherein R^1, R^2 and R^3 are independently an aliphatic hydrocarbyl moiety have from 4 to 24 carbon atoms, R^4 is hydrogen or an aliphatic hydrocarbyl moiety having 1 to 10 carbon atoms and x, y and z are the same or different and are integers from 1 to 6; wherein the minor deposit-inhibiting effective amount of the polyol ester is about 1 wt. % to about 5 wt. %, based on the total weight of the composition and wherein the composition has a phosphorous content not exceeding 0.08% by weight, based on the total weight of the composition."

Instead, Culpon discloses in Examples 1-3, which the Examiner relies upon in rejecting the claims, lubricating oil compositions containing a base oil and a TMP Ester 1 (a trimethylol propane ester of C_8-C_{10} normal carboxylic acid) or TMP Ester 2 (a trimethylol propane ester of C_7 and C_9 normal carboxylic acids) together with various additives, one of which is a sulfur and phosphorous-containing antiwear and extreme pressure gear oil additive package. Examples 1-3 of Culpon further discloses that the TMP Esters 1 and 2 are present in the lubricating oil compositions in amounts greater than or equal to 20 wt. %. In addition, there is no disclosure in

Culpon that the lubricating oil composition has a phosphorous content not exceeding 0.08% by weight, based on the total weight of the composition. Therefore, the lubricating oil compositions of Culpon are not within the scope of the reaction product as presently recited in amended Claim 1. Since Culpon does not disclose a lubricating oil composition as presently recited in amended Claim 1, amended Claims 1-5 and 9-14 are not anticipated by Culpon.

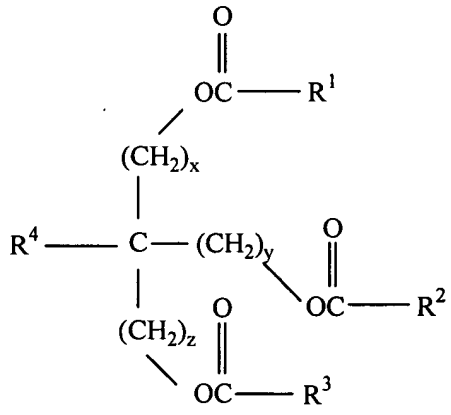
There is likewise no suggestion, motivation or even a hint in Culpon of forming a lubricating oil composition having a phosphorous content not exceeding 0.08% by weight, based on the total weight of the composition by combining a major amount of a base oil of lubricating viscosity with about 1 wt. % to about 5 wt. % of the specifically recited polyol ester. Instead, Culpon is concerned with providing lubricating oil compositions for chain and gear drive mechanisms containing a major portion of a synthetic base lubricating oil, a solubilizer comprising a trimethylol propane ester of C_6 to C_{12} carboxylic acids; and 2 to 4 wt % of a tackifier comprising a polybutene polymer of molecular weight 100,000 to 1,000,000. At no point is there any appreciation in Culpon that a lubricating oil composition can be formed having a phosphorous content not exceeding 0.08% by weight employing low levels of a specifically recited polyol ester with a major amount of a base oil of lubricating viscosity such that the lubricating oil compositions are more environmentally desirable than the higher phosphorous and sulfur content lubricating oil compositions generally used in internal combustion engines because they facilitate longer catalytic converter life and activity while also employing relatively low levels of the specifically recited polyol ester to provide high wear and deposit protection and oxidation-corrosion inhibition. Nothing in Culpon would lead one skilled in the art to modify the lubricating oil compositions disclosed therein and arrive at the presently claimed lubricating oil

composition with any expectation of success. As such, amended Claim 1 is believed to non-obvious, and therefore patentable, over Culpon.

The Examiner has rejected original Claims 6-8 under 35 U.S.C. §102(e) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as being obvious over Culpon, Jr. U.S. Patent No. 5,151,205 ("Culpon"). Of these claims, Claims 6-8 have been cancelled and the limitations of Claim 7 have been incorporated into amended independent Claim 1. Accordingly, the foregoing arguments made with respect to the rejection to amended Claim 1 applies with equal force to this rejection. Therefore, withdrawal of the rejection is respectfully requested.

The Examiner has rejected Claims 1, 4-6 and 8-14 under 35 U.S.C. §102(b) as being anticipated by Kodali et al. U.S. Patent No. 6,278,006 ("Kodali et al.").

In contrast to the presently claimed invention, Kodali et al. fail to disclose a lubricating oil composition within the scope of amended Claim 1, comprising, *inter alia*, "a minor deposit-inhibiting effective amount of at least one polyol ester of the general formula



wherein R^1, R^2 and R^3 are independently an aliphatic hydrocarbyl moiety have from 4 to 24 carbon atoms, R^4 is hydrogen or an aliphatic hydrocarbyl moiety having 1 to 10 carbon atoms and x, y and z are the same or different and are integers from 1 to 6; wherein the minor deposit-

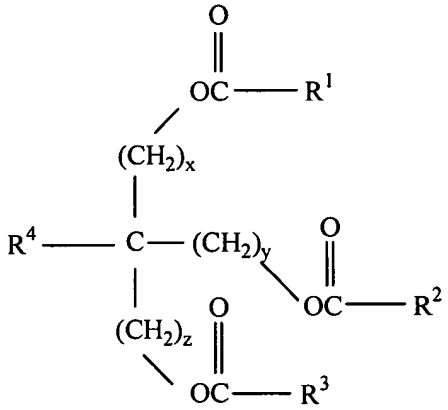
inhibiting effective amount of the polyol ester is about 1 wt. % to about 5 wt. %, based on the total weight of the composition and wherein the composition has a phosphorous content not exceeding 0.08% by weight, based on the total weight of the composition."

Instead, Kodali et al. disclose base oils prepared by transesterifying a first glycerol polyol ester with a second non-glycerol polyol ester. Additionally, Examples 3-5 of Kodali et al., which the Examiner relies upon in rejecting Claims 1, 4-6 and 8-14, simply disclose (1) a general transesterification procedure (Example 3); (2) transesterification of vegetable oils with short chain fatty acid esters (Example 4); and (3) characterization of the transesterified oil products (Example 5). At no point does Kodali et al. disclose about 1 wt. % to about 5 wt. % of the specifically recited polyol ester much less a lubricating oil composition containing a major amount of a base oil of lubricating viscosity and about 1 wt. % to about 5 wt. % of the specifically recited polyol ester, wherein the composition has a phosphorous content not exceeding 0.08% by weight, based on the total weight of the composition. Kodali et al. therefore does not disclose all of the elements and limitations of the claimed invention. Therefore, the lubricating oil compositions of Kodali et al. are not within the scope of the reaction product as presently recited in amended Claim 1.

Since Kodali et al. does not disclose a lubricating oil composition as presently recited in amended Claim 1, amended Claims 1, 4-6 and 8-14 are not anticipated by Kodali et al. Accordingly, withdrawal of the rejection of Claims 1, 4-6 and 8-14 under 35 U.S.C. §102(b) is respectfully requested.

The Examiner has rejected Claims 1-14 under 35 U.S.C. §103(a) as being unpatentable over Lal U.S. Patent No. 5,338,471 ("Lal") in view of anyone of the following: Chiu et al. or Culpon or Kodali et al.

As acknowledged by the Examiner, nothing in Lal discloses or suggests a lubricating oil composition within the scope of amended Claim 1, comprising, *inter alia*, "a minor deposit-inhibiting effective amount of at least one polyol ester of the general formula



wherein R^1, R^2 and R^3 are independently an aliphatic hydrocarbyl moiety have from 4 to 24 carbon atoms, R^4 is hydrogen or an aliphatic hydrocarbyl moiety having 1 to 10 carbon atoms and x, y and z are the same or different and are integers from 1 to 6; wherein the minor deposit-inhibiting effective amount of the polyol ester is about 1 wt. % to about 5 wt. %, based on the total weight of the composition and wherein the composition has a phosphorous content not exceeding 0.08% by weight, based on the total weight of the composition."

Rather, Lal discloses a composition comprising (A) at least one vegetable or synthetic triglyceride oil; (B) esters from the transesterification of at least one animal or vegetable oil triglyceride with an alcohol or phenol; (C) a pour point depressant; (D) at least one performance additive and optionally (E) at least one oil selected from the group consisting of (1) synthetic

ester base oil, (2) a mineral oil; (3) a polyalphaolefin; and (4) a vegetable oil. It is not seen where Lal provides any suggestion, motivation or even a hint of a lubricating oil composition containing (a) a major amount of a base oil of lubricating viscosity and (b) about 1 wt. % to about 5 wt. % of the specifically recited polyol ester. It is also not seen where Lal provides any suggestion, motivation or even a hint of a lubricating oil composition containing (a) a major amount of a base oil of lubricating viscosity and (b) a minor deposit-inhibiting effective amount of the specifically recited polyol ester wherein the composition has a phosphorous content not exceeding 0.08% by weight, based on the total weight of the composition. Thus, nothing in Lal that would lead one skilled in the art to modify the compositions disclosed therein and arrive at the claimed lubricating oil composition.

The secondary references do not cure and are not cited as curing the deficiencies of Lal. Chiu et al. disclose a biodegradable lubricant that is at least 60% biodegradable and has a gelation index less than about 12, which can be formulated using a transesterified triglycerol oil a synthetic ester capable of lowering the gelation index such as a dibasic ester, a tribasic ester or a pentaerythritol ester of a C_5-C_7 alcohol. Chiu et al. further disclose that the synthetic ester can be present in the lubricant in an amount from about 10 to about 30% or from about 15 to about 25%. Thus, even by combining Lal with Chiu et al. one skilled in the art would not even arrive at the claimed lubricating oil compositions.

Culpon discloses lubricating oil compositions for chain and gear drive mechanisms containing a major portion of a synthetic base lubricating oil, a solubilizer comprising a trimethylol propane ester of C_6 to C_{12} carboxylic acids; and 2 to 4 wt % of a tackifier comprising a polybutene polymer of molecular weight 100,000 to 1,000,000. At no point is there any

disclosure or appreciation in Culpon that a lubricating oil composition can be formed having a phosphorous content not exceeding 0.08% by weight employing low levels of specifically recited polyol ester with a major amount of a base oil of lubricating viscosity. Nothing in Culpon would lead one skilled in the art to look to the disclosure of Culpon to modify the lubricating oil composition of Lal and arrive at the presently claimed lubricating oil composition with any expectation of success. In fact, even by combining Lal with Culpon, one skilled in the art would not even arrive at the claimed lubricating oil compositions.

Kodali et al. disclose base oils prepared by transesterifying a first glycerol polyol ester with a second non-glycerol polyol ester. At no point does Kodali et al. disclose about 1 wt. % to about 5 wt. % of the specifically recited polyol ester much less a lubricating oil composition containing a major amount of a base oil of lubricating viscosity and about 1 wt. % to about 5 wt. % of the specifically recited polyol ester, wherein the composition has a phosphorous content not exceeding 0.08% by weight, based on the total weight of the composition. Thus, nothing in Kodali et al. would lead one skilled in the art to look to the disclosure of Kodali et al. to modify the lubricating oil composition of Lal and arrive at the presently claimed lubricating oil composition. In fact, even by combining Lal with Kodali et al., one skilled in the art would not even arrive at the claimed lubricating oil compositions.

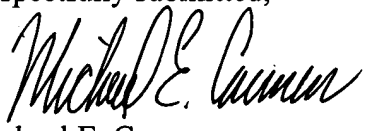
For the foregoing reasons, amended Claims 1-5 and 9-14 are believed to be non-obvious, and therefore patentable, over Lal in view of Chiu et al or Culpon or Kodali et al., no matter how these references are considered or combined. Accordingly, withdrawal of the rejection is respectfully requested.

The Examiner has provisionally rejected Claims 1-14 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-31 of co-pending Application No. 10/674,643. Upon resolution of all outstanding issues remaining in the Office Action, Applicants will consider the timely submission of a Terminal Disclaimer.

The Examiner has provisionally rejected Claims 1-14 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-46 of co-pending Application No. 11/046,994. Upon resolution of all outstanding issues remaining in the Office Action, Applicants will consider the timely submission of a Terminal Disclaimer.

For the foregoing reasons, amended Claims 1-5 and 9-14 as presented herein are believed to be in condition for allowance. Such early and favorable action is earnestly solicited.

Respectfully submitted,



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